

Exhibit 8

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA)
)
)
Plaintiff,)
)
v.)
)
DTE ENERGY COMPANY, and)
DETROIT EDISON COMPANY)
)
)
Defendants.)
_____)

**DECLARATION OF
BRUCE E. BIEWALD**

- (1) My name is Bruce Edward Biewald, and I am the President of Synapse Energy Economics Inc., a consulting company in Cambridge, Massachusetts specializing in analysis of electric power systems. I have nearly thirty years of experience advising state agencies, consumer and environmental advocates, utilities and others on issues related to the production and consumption of energy. I have testified in more than one hundred utility regulatory proceedings in twenty-six states and two Canadian provinces, in cases in State and Federal Courts, and in proceedings of the Federal Energy Regulatory Commission and the Nuclear Regulatory Commission's Atomic Safety and Licensing Board. I have co-authored more than one hundred reports, including studies for the Electric Power Research Institute, the US Department of Energy, the US Environmental Protection Agency, the Office of Technology Assessment, the Ozone Transport Commission, the New England Governors' Conference, the New England Conference of Public Utility Commissioners, the National Association of Regulatory Utility Commissioners, and the United Nations Framework Convention on Climate Change. My

papers have been published in the Electricity Journal, Energy Journal, Energy Policy, Public Utilities Fortnightly, and numerous conference proceedings.

- (2) As president of Synapse Energy Economics, I oversee a staff of twenty individuals, conducting many dozens of consulting assignments each year. Our work includes consulting projects dealing with electric industry restructuring, stranded costs, system benefits, market power, mergers and acquisitions, generation asset valuation and divestiture, rate cases, power plant costs and performance, power supply contracts and performance standards, electric power system reliability, renewable power generation, demand-side management, air emissions from power plants, and electricity market simulation modeling for price forecasting and market power analysis. Synapse's governmental clients include federal agencies such as the Environmental Protection Agency, state Attorneys General, Consumer Advocates, utility regulatory commissions, and a variety of cities and towns. We also work for a number of non-governmental consumer advocates and environmental organizations, as well as associations of agencies, foundations, and private clients.
- (3) My experience with electric system simulation modeling began in 1981, on projects to evaluate the economics of power system expansion plans. My experience includes programming these computer models, applying them in various types of analyses, and critiquing the application of these models by others. My own modeling work has involved simulation modeling of electric systems throughout the United States, including the PacifiCorp system in the Northwest; the MAPP, MAIN, and ECAR regions of the Midwest; the MACC, New York, and New England system in the Northeast, the Entergy

and Southern Company systems in the South; and a large number of smaller regions and utility systems.

- (4) In January of 2000, Synapse Energy Economics entered into a license agreement with Henwood Energy Services (now “Ventyx”) for the use of PROSYM. Synapse has applied PROSYM (now “Market Analytics”) in a dozen different projects for clients including the US Environmental Protection Agency, the Ozone Transport Commission, the Arkansas Public Service Commission Staff, the Vermont Department of Taxes, the Iowa Office of Consumer Advocate, the City of New York, and a number of environmental organizations. My staff have been trained to run models including STRATEGIST, PROSYM, and PROMOD.
- (5) Prior to founding Synapse, I was with Energy Systems Research Group (later Tellus Institute) where I was the manager of the electricity program, and consulted on a wide range of electric system regulatory and economic issues. I have a B.S. from the Massachusetts Institute of Technology where I studied Architecture, Building Technology, and Energy Use in Buildings.
- (6) I have been asked to examine documents related to simulation model runs prepared by Detroit Edison Company (“Detroit Edison” or “the Company”) focusing on the projected operation of Monroe Unit 2. Appendix A is a detailed statement of my qualifications and a listing of past testimony, papers and reports. I am being compensated \$160 per hour for my work on this matter.
- (7) In the paragraphs that follow I describe the PROMOD simulation model, and Detroit Edison’s model run for its Power Supply Cost Recovery (“PSCR”) filing with the

Michigan Public Service Commission, the regulatory agency in charge of determining what rates and costs Detroit Edison recovers from its Michigan ratepayers. In that model run, the projected availability of Monroe 2 is improved relative to the baseline period, and the generation from Monroe 2 increases. This increase in generation cannot be attributed to growth in demand, since the Company's projection of system demand is for a considerable decline in sales.

- (8) The Company runs the PROMOD model for purposes of its annual Power Supply Cost Recovery (PSCR) filings with the Michigan Public Service Commission, among other purposes. PROMOD is a "dispatch" or "production costing model" that simulates the economic dispatching of electricity generating resources to meet customer loads. Economic dispatch is the principle that electric utilities dispatch – or "turn on" – power plants with low operating costs before they dispatch power plants with higher operating costs (subject to various system constraints). Input data to PROMOD includes customer electricity demand, generating unit capacity rates, forced outage rates, planned outages, fuel costs, and O&M costs. The core of the simulation is the way in which the fleet of generating units is operated to serve customer loads throughout a particular time period. The model outputs can include tables of the amount of electricity generation and fuel consumption by generating unit, the amount of air emissions of various types by generating unit, and the operating costs (fuel and O&M) for generating units.
- (9) The PSCR cases are focused on the Company's costs of fuel and purchased power, and regulatory determination of the reasonableness of those costs for recovery from customers. It is central to the purpose of a PSCR case to have an accurate simulation of the system dispatch and the utilization of Detroit Edison's generating units.

- (10) The Company's March 12, 2010, and June 3, 2010, letters (to Michigan Department of Environmental Quality and US EPA Region 5, respectively) present information on the projected operation of Monroe 2, and make reference to the 2010 PSCR PROMOD runs as the basis for those projections.
- (11) A table attached to the Company's March 12 letter lists an annual capacity factor for Monroe 2 for the baseline period (May 2005 to April 2007) at 85.5% and a projected capacity factor for calendar year 2013 at 82.5%. The June 3 letter corrects the baseline capacity factor number to 72.2% (noting that 85.5% is actually the equivalent availability factor for that baseline period) and provides some limited additional information about the PROMOD inputs and projections.

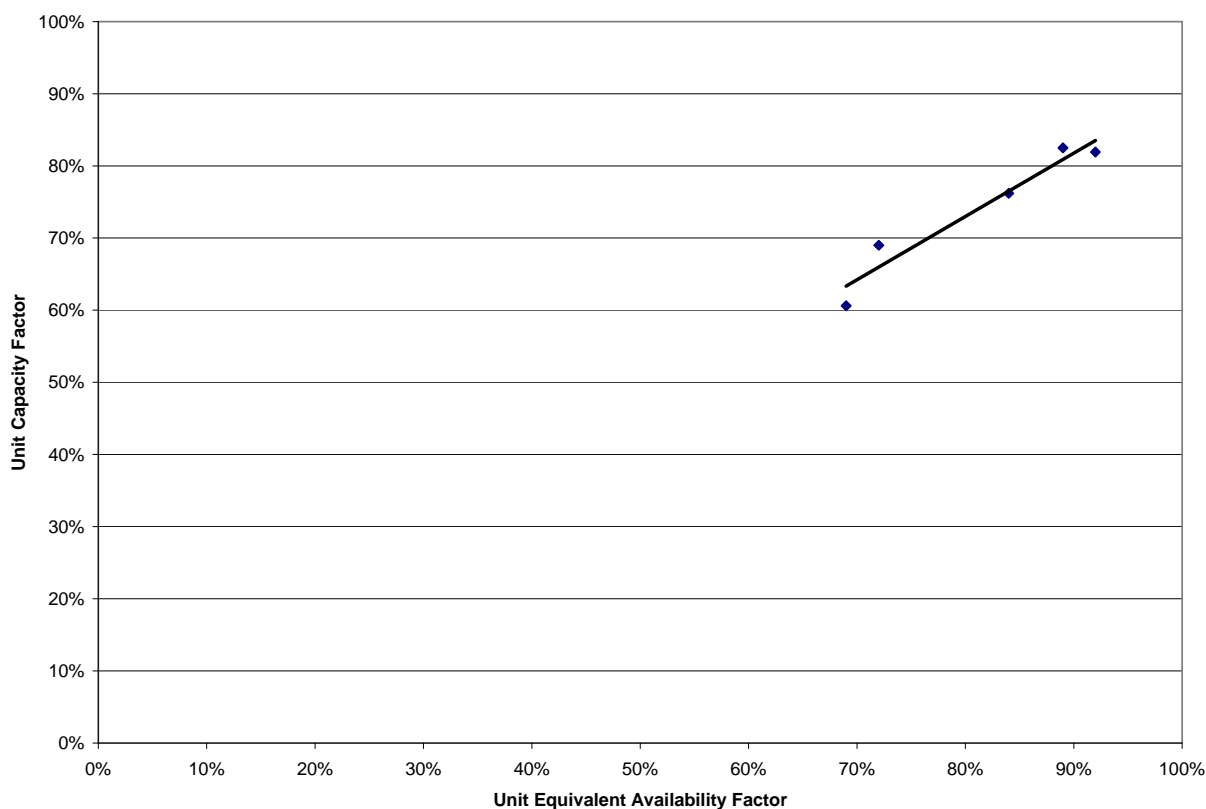
- (12) The projected annual capacity factor and equivalent availability factors according to the June 3 letter are as listed in the “EAF” and “CF” columns of the following table.

Table 1. Monroe 2 PROMOD data

	EFOR	EAF	CF	UF
2010	9.5%	69%	60.6%	88%
2011	8.3%	92%	81.9%	89%
2012	8.7%	84%	76.2%	91%
2013	8.7%	89%	82.5%	93%
2014	8.9%	72%	69.0%	96%

- (13) The 2010 EAF and CF are lower than those predicted for other years because of the planned outage (to conduct the plant modification that is at issue in this case).
- (14) The right hand column in the table above, labeled “UF,” lists the utilization factor for Monroe 2, projected for the calendar years indicated. I calculated these UFs by dividing the CF by the EAF. The UF is a measure of the amount that a generating unit is utilized as a portion of the total amount of time that it is available, after accounting for forced and planned outages. I calculated the Monroe 2 UF for the May 2005 to April 2007 baseline period to be 84.4% (based on the CF and EAF specified by the Company in its March 12 and June 3 letters).

- (15) Based upon the numbers for CF and UF in the table above, I conclude that Monroe is expected to be a highly utilized baseload unit. In addition, there is a reasonably direct relationship between the CF and EAF for Monroe in the Company's PROMOD run. That is, when EAF increases (the unit is more available) its CF also increases (the unit runs more). This is graphically clear from the x-y plot of the same CF and EAF data, below.



- (16) The column in Table 1, above, labeled “EFOR” lists the equivalent forced outage rate input assumptions for Monroe 2 in the Company's PROMOD run.¹ These values, ranging from 8.3% to 9.5% represent a significant decrease (i.e., improvement in availability of the unit) relative to the EFORs calculated for the baseline periods by

¹ Detroit Edison's June 3, 2010, letter refers to these as “ROR” for “random outage rates” but here I will use the more commonly used terminology “EFOR” or “equivalent forced outage rate.”

Ranajit (Ron) Sahu, using the data DTE reported to EPA. Mr. Koppe's calculations for the SO₂ and NO_x baseline periods put the outage rate at 14.5% and 16.6% respectively. The PROMOD EFOR inputs are slightly more than one half of these values.

- (17) For the EAF, Mr. Koppe's calculations based on GADS data put the Monroe 2 EAF for the baseline periods at 81.3% and 79.3% (for SO₂ and NO_x, respectively). The PROMOD EAFs are well above this for the years 2011, 2012, and 2013.
- (18) In the PROMOD model, as in the actual operation of an electric power system, plant availability will have a direct impact upon plant generation. Plant availability is input to the model in the form of planned outages and expected forced outage rate (FOR). Together the planned outages and the equivalent forced outage rate determine the "equivalent availability factor" or "EAF." As a general matter, a decreased forced outage rate means an increased EAF, and the increased EAF will result in a higher capacity factor for the unit. Moreover, the relationships among these variables tend to be linear. That is, with other variables constant in the model, the additional availability tends to be used according to a utilization factor for the unit. The additional generation typically results in increased fuel use and air emissions.
- (19) There are other factors besides the EAF that can indirectly influence the capacity factor of a generating unit. These include the relative operating costs of generators (e.g., the economic dispatch order or loading order) and the system demand. In the case of Detroit Edison's projected operation of the Monroe units, from the limited information provided there is no indication of a large change in operating costs. There is a large change in projected system demand assumed in DTE's selected PROMOD run, but that change is

downward between the baseline period and the projection period in DTE's March 12, 2010 letter.

- (20) The Company's forecast of system demand is presented in the Power Supply Cost Recovery testimony of Sherrie L. Siefman (MPSC Case No. U-16047). The actual and forecast system output, in millions of kWh, is as follows (from Ms. Siefman's Exhibit No A-8):

2003	55,800
2004	55,656
2005	58,117
2006	57,348
2007	58,128
2008	55,703
2009	51,041
2010	51,387
2011	51,763
2012	52,224
2013	52,331
2014	52,069

- (21) In summary, the Company's PROMOD runs, which are the basis for the 2010 PSCR filing and for the March 12 and June 3 letters, show Monroe 2 generation increasing. This increase cannot reasonably be attributed to increases in demand, which is dropping precipitously according to the Company's forecast. The decrease to the unit's EFOR and improvement to unit availability is clearly a cause of the expected increase in generation.
- (22) Appendix A contains my resume. Appendix B provides a list of considered documents.

I declare under penalty of perjury that the foregoing is true and correct.

A handwritten signature in black ink, appearing to read "B. Biewald", is written above a horizontal line.

Bruce E. Biewald

Executed on July 21, 2010 in Cambridge, Massachusetts.

APPENDIX A

BIEWALD RESUME

Bruce Edward Biewald
President
Synapse Energy Economics, Inc.
22 Pearl Street, Cambridge, MA 02139
(617) 661-3248 ext. 222 • fax: (617) 661-0599
www.synapse-energy.com
bbiewald@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. President, 1996 to present.
Consulting on issues of energy economics, environmental impacts, and utility regulatory policy, including electric power system planning, air emissions, climate change policy, market power, mergers and acquisitions, generation asset valuation and divestiture, nuclear and fossil power plant costs and performance, renewable resources, power supply contracts and performance standards, green marketing of electricity, nuclear plant decommissioning and radioactive waste issues, environmental externalities valuation, energy conservation and demand-side management, electric power system reliability, avoided costs, dispatch modeling, economic analysis of power plants and resource plans, portfolio management, risk analysis and risk management.

Tellus Institute, Boston, MA. Senior Scientist and Manager of the Electricity Program, 1989 to 1996, Research Associate and later Associate Scientist, 1980-1988.
Responsible for research and consulting on all aspects of electric system planning, regulation, and restructuring.

EDUCATION

Massachusetts Institute of Technology,
BS 1981, Architecture, Building Technology, Energy Use in Buildings.
Harvard University Extension School,
1989/90, Graduate courses in micro and macroeconomics.

SUMMARY OF TESTIMONY, PUBLICATIONS, AND PRESENTATIONS

Expert testimony on energy, economic, and environmental issues in more than one hundred utility regulatory proceedings in twenty six states and two Canadian provinces, in cases in State and Federal Courts, and in proceedings of the Federal Energy Regulatory Committee and the Nuclear Regulatory Commission's Atomic Safety and Licensing Board.

Co-author of more than one hundred reports, including studies for the Electric Power Research Institute, the U.S. Department of Energy, the U.S. Environmental Protection Agency, the Office of Technology Assessment, the New England Governors' Conference, the National Association

of Regulatory Utility Commissioners, and the United Nations Framework Convention on Climate Change.

Papers published in the Electricity Journal, the Energy Journal, Energy Policy, Public Utilities Fortnightly, and numerous conference proceedings.

Invited to speak by American Society of Heating, Refrigerating, and Air-Conditioning Engineers, American Society of Mechanical Engineers, International Atomic Energy Agency, National Association of Regulatory Utility Commissioners, National Association of State Utility Consumer Advocates, National Consumer Law Center, the Latin American Energy Association (OLADE), the Swedish Environmental Protection Agency (SNV), the U.S. Environmental Protection Agency, the European Federation of Clean Air and Environmental Protection Associations, and others.

TESTIMONY

United States District Court for the North District of Alabama (Civil Action No 2:01-CV-00152-VEH) United States v. Alabama Power Company – December 2009

Expert report on use of computer models for electric system planning and projections of generating unit operations. Also rebuttal report in May 2010.

United States District Court for the Eastern District of Kentucky, Lexington Division (Case 5:05-cv-0075-KSF) United States v. Kentucky Utilities Company – October 2008

Expert report on use of computer models for electric system planning, capital investment planning and economic analysis, and projections of generating unit operations.

Nova Scotia Utility and Review Board – August 2008

Review of rate case issues; power plant depreciation and load forecasting.

Nova Scotia Utility and Review Board – March 2008

Review of Nova Scotia Power Inc.'s demand-side management plan.

Indiana Utility Regulatory Commission (Cause Nos. 43114 and 43114S1) – May 2007

Review of IGCC Plant Proposal by Duke Energy Indiana and Vectren Testimony of Synapse Witnesses. Also cross answering testimony later in the month.

California Public Utilities Commission (Docket No. R.06-02-013) – March 2007

Joint testimony with William Steinhurst and Rick Hornby on electric utility long-term planning and procurement, including procurement strategy, treatment of carbon dioxide emissions, credit and collateral policies, customer risk tolerance, and resource needs.

New Jersey Board of Public Utilities (Docket No. EM05020106) – November and December 2005 and March 2006

Joint testimony with Bob Fagan and David Schlissel on the market power implications of the proposed merger between Exelon Corp. and Public Service Enterprise Group.

Indiana Utility Regulatory Commission (Cause Nos. 42861) – October 2005

Vectren (SIGECO) environmental compliance planning, including climate change policy and carbon price forecasting, energy efficiency and renewables as compliance options, and cost recovery issues.

United States District Court for the Eastern District of Kentucky, Lexington Division (Civil Action No.04-34-KSF, United States v. East Kentucky Power Cooperative – September 2005
Expert report on state regulation of electric utilities, use of computer models for system planning, capital investment planning and economic analysis, and projections of generating unit operations.

United States District Court for the Southern District of Indiana (Civil Action No. IP99-1693 C-M/S, United States v. Cinergy – May 2005
Expert report on state regulation of electric utilities, forecasting sales and resource requirements, use of computer models for system planning, capital investment planning and economic analysis, projections of generating unit operations, and the relationship between generator availability and output. Also, rebuttal report in September.

Federal Energy Regulatory Commission (Docket No. EC05-43-000) – April 2005
Market power analysis of the proposed merger of Exelon Corporation and Public Service Enterprise Group Incorporated. (Joint affidavit with David Schlissel.)

Nuclear Regulatory Commission Atomic Safety and Licensing Board (Docket No. 52-007-ESP and ASLBP No. 04-821-01-ESP) – April 2005
Affidavit on the environmental impacts and economic costs of a proposed new nuclear power project and alternatives.

Indiana Utility Regulatory Commission (Cause Nos. 42622 and 42718) – March 2005
Public Service Company of Indiana environmental compliance planning, including cost estimates for emission control technologies, climate change policy and carbon price forecasting, energy efficiency and renewables as compliance options, power plant retirement economics, and cost recovery issues.

National Research Council, Division on Engineering and Physical Sciences, Board on Energy and Environmental Systems (Project No. BEES-J-03-03-A) – March 2005
Alternatives for replacing the generation of the Indian Point Energy Center nuclear facility.

Georgia Public Service Commission (Docket No. 18300-U) – October 2004
Georgia Power Company's cost of service study, treatment of electrical distribution equipment, and proposed rates for the Metropolitan Atlanta Rapid Transit Authority.

Texas Public Utility Commission (Docket No. 29526) – June 2004
Issues in CenterPoint Energy Houston Electric LLC's true up filing, including environmental cleanup costs, excess mitigation credits, and construction work in progress. Also rebuttal testimony on June 14.

Texas Public Utility Commission (Docket No. 28818) – April 2004

The Independent Transmission Operator proposal of Energy Gulf States Utilities, Inc. (prefiled testimony adopted by Paul Peterson).

Indiana Utility Regulatory Commission (Cause No. 42359) – August 2003

Public Service Company of Indiana rate making issues including the impact of trackers on risks to shareholders and customers, costs of environmental compliance, treatment of merchant plant investment and risk, and joint dispatch issues.

Nevada Public Utilities Commission (Docket No. 03-1014) – April 2003

Review of Sierra Pacific Power Company's risk management and procurement of electric power in the wholesale markets.

Nevada Public Utilities Commission (Docket No. 02-11021) – March 2003

Review of Nevada Power Company's risk management and procurement of electric power in the wholesale markets.

United States District Court for the Southern District of Illinois (Civil Action No. 99-833-MJR, United States v. Illinois Power Company and Dynegy Midwest Generation, Inc.) – August 2003

Testimony at trial on analysis and opinions in rebuttal report dated October 2002 on use of computer models for system planning, projections of generating unit operations, and the relationship between generator availability and output.

State of Vermont, Windham Superior Court (Appeal of USGen New England, Inc. from 2001 Property Valuation by the Town of Rockingham) – September 2002

Electricity market prices and economic valuation of hydroelectric generating plant.

United States District Court for the Middle District of North Carolina (Civil Action No. 1:00 CV 1262, United States v. Duke Energy Corporation) – August 2002

Expert report on use of computer models for system planning, projections of generating unit operations, and the relationship between generator availability and output. (Joint report with Phil Hayet.)

Indiana Utility Regulatory Commission (Cause No. 41746) – July 2002

Reply testimony on a rate case settlement agreement, dealing with issues including NiSource's financial condition, service quality, environmental commitment, and electric rate impacts.

Connecticut Department of Public Utility Control (Docket No. 00-12-13RE01) – July 2002

The proposed sale of Seabrook Nuclear Station to FPL Energy Seabrook, LLC. Market power issues and market modeling.

United States District Court for the Southern District of Indiana (Civil Action No. IP99-1692-C-M/S, United States v. Southern Indiana Gas and Electric Company) – June 2002

Declaration on confidential business information and competitive harm.

Nevada Public Utilities Commission (Docket No. 02-2002) – April 2002

Review of Sierra Pacific Power Company's risk management and procurement of electric power in the wholesale markets.

Vermont Public Service Board (Docket No. 6596) – March 2002

Used and useful policy issues, electricity market prices, and above market costs of the purchase from Hydro Quebec.

Nevada Public Utilities Commission (Docket No. 01-11029) – February 2002

Review of Nevada Power Company's risk management and procurement of electric power in the wholesale markets.

Vermont Public Service Board (Docket No. 6545) – January 2002

Economic analysis of the proposed sale of Vermont Yankee nuclear plant and an associated Purchased Power Agreement.

New Jersey Board of Public Utilities (Docket No. EM01050308) – September 2001

Analysis of the proposed merger between Conectiv and PEPCo. Also, surrebuttal testimony in November. (Joint testimony with David Schlissel.)

Indiana Utility Regulatory Commission (Cause No. 41954) – June 2001

System planning and joint operation in a partially deregulated context.

State of Vermont, Windham Superior Court (Dockets S 362-9-99 and S372-9-99) – May 2001

Deposition on electricity market prices and economic valuation of hydroelectric generating plant.

Federal Energy Regulatory Commission (Docket No. ER01-200-001) – April 2001

Termination of the Cinergy Operating Agreement, treatment of merger savings, and affiliate relationships. Also cross-answering testimony in April.

New Jersey Board of Public Utilities (Docket No. EM00110870) – April 2001

Analysis of the proposed merger between FirstEnergy and GPU. Also, supplemental testimony in April. (Joint testimony with David Schlissel.)

Vermont Public Service Board (Dockets Nos. 6120 and 6460 – March 2001

Used and useful policy issues, electricity market prices, and above market costs of the purchase from Hydro Quebec. Also, surrebuttal testimony in April.

United States District Court for the Northern District of New York (Civil Action No. 00-CV-1738) – January 2001

Affidavit on the issuance and trading of SO2 emission allowances under the Title IV of the Clean Air Act, in Clean Air Markets Group v. George E. Pataki et al.

Department of Energy (Docket No. EE-RM-500) – December 2000

Oral testimony on proposed rules for central air conditioner and heat pump energy conservation standards.

Illinois Commerce Commission (Docket No. 00-0361) – July 2000

Review of ComEd's funding for nuclear power plant decommissioning.

California Public Utilities Commission (Rulemaking 99-10-025) – July 2000
Distributed generation and related rate design issues. Also, rebuttal testimony in August.

Massachusetts Department of Environmental Protection – July 2000
Comments on reliability implications of proposed emission standards for power plants.

Arkansas Public Service Commission (Docket No. 00-048-R) – June 2000
Requirements for electricity market power analyses.

United States District Court for the Middle District of North Carolina (1:99CV00033) – March 2000
Expert report on replacement power costs in Carolina Power & Light Company vs. Yuasa Exide, Inc.

Illinois Commerce Commission (Docket No. 99-0115) – September 1999
Review of ComEd's nuclear power plant decommissioning cost estimates.

West Virginia Public Service Commission (Case No. 98-0452-E-GI) – August 1999
AEP and Allegheny Power restructuring, market power, divestiture of generation, electric system market price modeling, statistical analysis of comparable sales, and responsibility for stranded costs and gains.

Mississippi Public Service Commission (Docket No. 96-UA-389) – August 1999
Review of Entergy Mississippi, Inc. and Mississippi Power Company stranded cost filings, divestiture of generation, statistical analysis of comparable sales, responsibility for stranded costs and gains.

Connecticut Department of Public Utility Control (Docket No. 99-03-36) – July 1999
Connecticut Light and Power Company standard offer service, market prices for electricity and the influence of market power, simulation analysis of the New England electricity market.

Connecticut Department of Public Utility Control (Docket No. 99-03-35) – July 1999
United Illuminating Company standard offer service, market prices for electricity and the influence of market power, simulation analysis of the New England electricity market.

Utah Public Service Commission (Docket No. 98-2035-04) – June 1999
Cost savings expectations for the proposed merger of PacifiCorp and Scottish Power.

Washington Utilities and Transportation Commission (Docket No. UE-981627) – June 1999
Cost savings expectations for the proposed merger of PacifiCorp and Scottish Power and assessment of whether the merger is in the public interest.

Federal Energy Regulatory Commission (Docket Nos. EC98-40-00, et al.) – April 1999
Horizontal market power and barriers to entry in consideration of the proposed merger of American Electric Power Company and Central and South West Corporation.

Connecticut Department of Public Utility Control (Docket No. 99-03-04) – April 1999
Market power, market prices, and simulation modeling as related to the application of United Illuminating Company for recovery of stranded costs.

Connecticut Department of Public Utility Control (Docket No. 99-02-05) – April 1999
Market power, market prices, and simulation modeling as related to the application of Connecticut Light & Power Company for recovery of stranded costs.

Maryland Public Service Commission (Case No. 8797) – January 1999
Simulation analysis of the ECAR market and projected market prices for electricity for estimation of Potomac Electric Company's stranded generation costs and unbundled rates.

Maryland Public Service Commission (Case No. 8795) – December 1998
Simulation analysis of the PJM market and projected market prices for electricity for estimation of Delmarva Power and Light Company's stranded generation costs and unbundled rates.

Maryland Public Service Commission (Cases Nos. 8794 and 8804) – December 1998
Simulation analysis of the PJM market and projected market prices for electricity for estimation of Baltimore Gas and Electric Company's stranded generation costs and unbundled rates.

Vermont Public Service Board (Docket No. 6107) – September 1998
Excess capacity, used & useful, and the economics of Green Mountain Power's purchase from Hydro Quebec.

Mississippi Public Service Commission (Docket No. 96-UA-389) – September 1998
Analyses of market concentration and market power, behavior of affiliated companies, need for an independent system operator.

California Public Utilities Commission (Application No. 97-12-020) – July 1998
Nuclear power plant decommissioning and radioactive waste disposal. Also, rebuttal testimony in August.

Federal Energy Regulatory Commission (Docket No. EC97-46-000) – June 1998
Affidavit on market power implications of the proposed merger between Allegheny Power System and Duquesne Light Company.

New Jersey Board of Public Utilities (Docket Nos. EX4120585Y, EO97070460, and EO97070463) – March 1998
Economic and environmental benefits of energy efficiency, including estimation of marginal air emissions from the PJM System. (Joint testimony with Nathanael Greene, Edward Smeloff, and Thomas Bourgeois.)

Vermont Public Service Board (Docket No. 6018) – February 1998
Excess capacity and the economics of Central Vermont Public Service Company's purchase from Hydro Quebec.

Public Service Commission of Maryland (Case No. 8774) – February 1998
Market power implications of the APS-DQE merger.

Federal Energy Regulatory Commission (Docket Nos. OA97-237-000 and ER97-1079-000) – January 1998
Market power in New England electricity markets.

British Columbia Utilities Commission – November 1997
British Columbia Hydro and Power Authority Wholesale Transmission Services Application.

Pennsylvania Public Utility Commission (Docket R-00973981) – November 1997
West Penn Power Company Restructuring Plan. Environmental disclosure, consumer education, and allocation of default customers.

Pennsylvania Public Utility Commission (Docket R-00974104) – November 1997
Duquesne Light Company Restructuring Plan. Environmental disclosure, consumer education, nuclear decommissioning, and allocation of default customers. Also surrebuttal testimony in December 1997.

Mississippi Public Service Commission (Docket No. 97-UA-496) – November 1997
Petition of Mississippi Power Company for a Certificate of Public Convenience and Necessity Authorizing Construction of a Generating Plant in Jackson County.

Pennsylvania Public Utility Commission (Docket Nos. R-00973953 and P-00971265) – November 1997
Application of PECO Energy Company for approval of its restructuring plan and petition on Enron Energy Services Power, Inc. for approval of an electric competition and customer choice plan. Allocation of default customers.

Vermont Public Service Board (Docket No. 5983) – October 1997
Excess capacity and the economics of Green Mountain Power Company's purchase from Hydro Quebec. Also rebuttal testimony in December 1997 and supplemental rebuttal testimony in January 1998.

Pennsylvania Public Utility Commission (Docket No. R-00973953) – September 1997
Joint petition for partial settlement of PECO Energy Company's proposed restructuring plan and application for a qualified rate order. Environmental disclosure, nuclear decommissioning and spent fuel.

Pennsylvania Public Utility Commission (Docket No. R-00974009) – September 1997
Pennsylvania Electric Company's Restructuring Plan. Environmental disclosure, customer education, and nuclear issues.

Pennsylvania Public Utility Commission (Docket No. R-00974008) – September 1997

Metropolitan Edison Company's Restructuring Plan. Environmental disclosure, customer education, and nuclear issues.

Indiana Legislature, Regulatory Flexibility Committee -- September 23, 1997.
Testimony on "Electric Industry Restructuring To Benefit Consumers and the Environment: Stranded Costs, Nuclear Issues, and Air Emissions."

Pennsylvania Public Utility Commission (Docket No. R-00973954) -- June 1997
Pennsylvania Power & Light Company's Restructuring Plan. Environmental disclosure, customer education, PJM market structure, nuclear decommissioning and spent fuel, rate design for stranded cost recovery. Also, surrebuttal testimony in August.

Pennsylvania Public Utility Commission (Docket No. R-00973953) -- June 1997
PECO Energy Company's Restructuring Plan. Environmental disclosure, PJM market structure, nuclear decommissioning and spent fuel.

New York Public Service Commission (Case 96-E-0897) -- April 1997
Consolidated Edison Company's Plans for Electric Rate Restructuring. Analysis of market power in the New York City load pocket.

Pennsylvania Public Utility Commission (Docket No. R-00973877) -- February 1997
Application of PECO Energy Company for Issuance of a Qualified Rate Order. Nuclear power plant decommissioning costs, stranded cost recovery, and securitization.

New Hampshire Public Utilities Commission (DR 96-150) -- November 1996
Electric industry restructuring, including stranded costs, industry structure, market power, and nuclear issues.

Massachusetts Department of Public Utilities (96-100) -- July 1996
Nuclear plant stranded costs and decommissioning.

Vermont Public Service Board (5854) -- July 1996
Electric industry restructuring, including stranded costs, industry structure, and environmental protection.

Ontario Energy Board (H.R. 23) -- June 1995
Electricity rate options (joint evidence with John Stutz).

Pennsylvania Public Utility Commission (R-00943271) -- April 1995
Discount rates and system benefits charge.

Colorado Public Utilities Commission (94A-516A) -- January 1995
Construction of new generating resources.

Public Service Commission of Nevada (94-9002) -- November 1994
Environmental and health impacts of a proposed power plant.

Nuclear Decommissioning Finance Committee of New Hampshire (93-001) – September 1994
Seabrook decommissioning cost, spent fuel storage, and cost collection methodology (joint testimony with William Dougherty).

Public Service Commission of Wisconsin (6630-CE-197 and 6630-CE-209) – September 1994
Point Beach externalities, economics, spent fuel storage, and aging (joint testimony with William Dougherty).

British Columbia Utilities Commission – August 1994
Greenhouse gas emissions and environmental externalities policy

Public Service Commission of Wisconsin (05-EI-14) – February 1994
Cost of decommissioning Point Beach and Kewaunee nuclear power plants. Also, rebuttal and surrebuttal testimony in February.

Delaware Public Service Commission (91-39) – September 1992
Nuclear and fossil power plant performance targets.

Massachusetts Department of Public Utilities (91-131) – December 1991
Internalization of environmental externalities, greenhouse gas valuation and policy.

Massachusetts Department of Public Utilities (91-131) – October 1991
Environmental externalities valuation, emissions effects and global warming.

Massachusetts Department of Public Utilities ((89-141, 90-73, 90-141, 90-194 and 90-270) – December 1990
The incorporation of environmental externalities in specific utility RFPs.

Massachusetts Department of Public Utilities (90-55) – June 1990
Costs and benefits of high-efficiency gas heating equipment.

Massachusetts Department of Public Utilities (86-36-G and 89-239) – March 1990
Environmental externalities of electric resources.

Florida Public Service Commission (890973-E1) – January 1990
Integrated energy planning, power plant emissions, and nuclear plant performance.

Pennsylvania Public Utilities Commission (R-891364) – October 1989
Generating capacity requirements of the Philadelphia Electric Company and the Pennsylvania-New Jersey-Maryland Interconnection.

Maryland Public Service Commission (8199) – October 1989
Performance standards for coal, oil, and nuclear power plants.

Michigan Public Service Commission (U-9172) – April 1989

Economic analysis of the Palisades Power Purchase Agreement. Ratepayer impacts, incentives, and implications for plant operation and decommissioning.

Pennsylvania Public Utility Commission (P-870216, P-880283, P-880284, and P-880286) – March 1989
Allegheny Power System planning and avoided costs.

Michigan Public Service Commission (U-8880) – February 1988
Detroit Edison Company power supply costs, economics of Fermi “buy-back” purchase, nuclear fuel expense, oil costs, and power transactions.

Michigan Public Service Commission (U-8866) – December 1987
Consumers Power Company power supply costs, including projections of oil prices and purchased power costs.

Pennsylvania Public Utility Commission (R-850220) – September 1987
Economic analysis of West Penn Power Company’s participation in the Bath County Pumped Storage Project, and Allegheny Power System capacity reserve requirements. Also, surrebuttal testimony in October.

Arizona Corporation Commission (U-1345-85-367) – February 1987
Palo Verde decommissioning cost.

Michigan Public Service Commission (U-8545) – December 1986
Consumers Power Company power costs, projected cost of oil and purchased power, economic evaluation of the Big Rock Point nuclear unit.

Public Service Commission of Indiana (38045) – November 1986
Northern Indiana Public Service Company system reliability and excess capacity.

California Public Utility Commission (84-06-014 and 85-08-025) – July 1986
Diablo Canyon decommissioning cost and collection issues.

Michigan Public Service Commission (U-8042R) – June 1986
Review of Consumers Power Company system operations during 1985 and economic evaluation of the Big Rock Point nuclear unit.

Michigan Public Service Commission (U-8291) – April 1986
Detroit Edison Company power supply costs, application of a multi-area dispatch model.

Michigan Public Service Commission (U-8286) – February 1986
Consumers Power Company power supply costs, application of a multi-area dispatch model.

Maine Public Service Commission (85-132) – January 1986
Standard and long term rates for cogeneration and small power production. Surrebuttal testimony in February.

Arkansas Public Service Commission (84-249-U) – June 1985
Impact of the Grand Gulf nuclear unit upon Arkansas Power and Light Company and Middle South Utilities electricity production costs.

Kentucky Public Service Commission (8666) – February 1984
Production costing modeling issues.

REPORTS

Avoided Energy Supply Costs in New England: 2009 Report, prepared for AESC/ Massachusetts Avoided Energy Supply Components Study Group by Rick Hornby, David White, Bruce Biewald, Chris James, Ben Warfield, and Max Chang of Synapse, and Paul Chernick, Carl Swanson, Ian Goodman, Bob Grace, and Jason Gifford, August 21, 2009.

Productive and Unproductive Costs of CO2 Cap-and-Trade: Impacts on Electricity Consumers and Producers, prepared for National Association of Regulatory Utility Commissioners, National Association of State Utility Consumer Advocates, National Rural Electric Cooperative Association, and American Public Power Association by Ezra Hausman, Jeremy Fisher, Lauri Mancinelli, and Bruce Biewald, July 15, 2009.

Incorporating Carbon Dioxide Emissions Reductions in Benefit Calculations for Energy Efficiency: Comments on the Department of Energy's Methodology for Analysis of the Proposed Lighting Standard, prepared for New York State Attorney General by Bruce Biewald, David White, Jeremy Fisher, Max Chang, and Lucy Johnston, May 13, 2009.

Cost and Benefits of Electric Utility Energy Efficiency in Massachusetts, prepared for the Northeast Energy Efficiency Council by Doug Hurley, Kenji Takahashi, Bruce Biewald, Jennifer Kallay, and Robin Maslowski, August 1, 2008.

Analysis of Indirect Emissions Benefits of Wind, Landfill Gas, and Municipal Solid Waste Generation, prepared for U.S. Environmental Protection Agency by Ezra Hausman, Jeremy Fisher, and Bruce Biewald, July 23, 2008.

Don't Get Burned: The Risks of Investing in New Coal-Fired Generating Facilities, prepared for Interfaith Center on Corporate Responsibility by David Schlissel, Lucy Johnston, Jennifer Kallay, Christopher James, Anna Sommer, Bruce Biewald, Ezra Hausman, and Allison Smith, February 26, 2008.

Tufts Cove Waste Heat Recovery Project, prepared for the Nova Scotia Utility and Review Board by Bruce Biewald, Bill Powers, and Ben Warfield, December 4, 2007 and revised August 4, 2008.

Avoided Energy Supply Costs: 2007 Final Report, prepared for AESC / Massachusetts Avoided Energy Supply Components Study Group by Rick Hornby, Carl Swanson, David White, Paul Chernick, Bruce Biewald, and Jennifer Kallay, August 10, 2007.

The Deerfield Wind Project – Assessment of the Need for Power and the Economic and Environmental Attributes of the Project, prepared for PPM Energy by Ezra Hausman, Bruce Biewald, and Kenji Takahashi, August 1, 2006.

Portfolio Management: Tools and Practices for Regulators, prepared for the National Association of Regulatory Utility Commissioners by William Steinhurst, David White, Rick Hornby, Alice Napoleon, Amy Roschelle, and Bruce Biewald, October, 2006.

Incorporating Energy Efficiency into the ISO New England Forward Capacity Market: Ensuring the Capacity Market Properly Values Energy Efficiency Resources, prepared for Conservation Services Group by Paul Peterson, Doug Hurley, Tim Woolf, and Bruce Biewald, June 5, 2006. Ensuring Delaware's Energy Future: A Response to Executive Order Number 82, prepared for the Delaware Public Service Commission Staff by the Delaware Cabinet Committee on Energy with technical assistance from Synapse Energy Economics, March 8, 2006.

The Proposed Broadwater LNG Import Terminal Response to Draft Environmental Impact Statement and Update of Synapse Analysis, prepared for the Connecticut Fund for the Environment and Save The Sound by Ezra Hausman, Bruce Biewald, Kenji Takahashi, and David Schlissel, January 22, 2007.

RPM 2006: Windfall Profits for Existing Base Load Units in PJM, prepared for the Pennsylvania Office of Consumer Advocate by Bruce Biewald, Ezra Hausman, Paul Peterson, and David White, February 2, 2006.

An RPM Case Study: Higher Costs for Consumers, Windfall Profits for Exelon, prepared for Illinois Citizens Utility Board, by Ezra Hausman, Paul Peterson, David White, and Bruce Biewald, October 18, 2005.

Considering Climate Change in Electric Resource Planning: Zero is the Wrong Value, by Lucy Johnston, Amy Roschelle, Ezra Hausman, Anna Sommer, and Bruce Biewald, Rev 3, September 30, 2005.

Using Electric System Operating Margins and Build Margins in Quantification of Carbon Emission Reductions Attributable to Grid Connected CDM Projects, a Synapse Energy Economics, Inc. report for the United Nations Framework Convention on Climate Change, September 19, 2005.

Methods for Estimating Emissions Avoided by Renewable Energy and Energy Efficiency, a Synapse Energy Economics, Inc. report for the U.S. Environmental Protection Agency by Bruce Biewald and Geoff Keith, July 8, 2005.

Economic Impacts and Avoided Air Emissions from Renewable Generation and Efficiency Programs in New England, a Synapse Energy Economics, Inc. report for the Regulatory Assistance Project by William Steinhurst, Robert McIntyre, Bruce Biewald, Cliff Chen, and Kenji Takahashi. April 15, 2005.

Electric Price Forecasts for St. Lawrence Hydroelectric Generation, prepared for the International Joint Commission (IJC) by David White and Bruce Biewald, March 11, 2005.

A Responsible Electricity Future: An Efficient, Cleaner and Balanced Scenario for the US Electricity System, a Synapse Energy Economics, Inc. report for the National Association of State PIRGs, by Bruce Biewald, David White, Geoff Keith, and Time Woolf. June 11, 2004.

Electricity Prices in PJM: Comparison of Wholesale Power Costs in the PJM Market to Indexed Generation Service Costs, a Synapse Energy Economics, Inc. report prepared for the PJM Interconnection, L.L.C., by Bruce Biewald, William Steinhurst, David White, and Amy Roschelle. June 3, 2004.

Reply Comments in Docket No. 2004-147: Strategies for Procuring Residential and Small Commercial Standard Offer Supply in Maine, a Synapse Energy Economics, Inc. report prepared for the Maine Office of Public Advocate by Amy Roschelle, Bruce Biewald, and Paul Peterson. April 21, 2004.

Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers, a Synapse Energy Economics, Inc. report prepared for the Regulatory Assistance Project and the Energy Foundation, by Bruce Biewald, Tim Woolf, Amy Roschelle and William Steinhurst. October 10, 2003.

A Clean Electricity Strategy for the Hudson River Valley, a Report for the Hudson River Foundation by Synapse Energy Economics and Pace Law School Energy Project. Geoff Keith, Bruce Biewald, David E. White, and Fred Zalzman. October 2003.

Estimating the Environmental Benefits of Renewable Energy and Energy Efficiency in North America: Experience and Methods, a report for the Commission for Environmental Cooperation, by Geoffrey Keith, Bruce Biewald, Anna Sommer, Patrick Henn, and Miguel Breceda, September 22, 2003.

Comments on the RPS Cost Analyses of the Joint Utilities and the DPS Staff, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Bruce Biewald, Cliff Chen, Anna Sommer, William Steinhurst, and David E. White. September 19, 2003.

Modeling Demand Response and Air Emissions in New England, a Synapse Energy Economics, Inc. report prepared for the U.S. Environmental Protection Agency, by Geoff Keith, Bruce Biewald, David White, and Mike Drunsic, August 2003.

Cleaner Air, Fuel Diversity and High-Quality Jobs: Reviewing Selected Potential Benefits of an RPS in New York State, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Geoff Keith, Bruce Biewald, David White, Anna Sommer and Cliff Chen. July 28, 2003.

The New England Experiment: An Evaluation of the Wholesale Electricity Markets, a Synapse Energy Economics, Inc. report provided to the Connecticut Office of Consumer Counsel, Maine Office of the Public Advocate, and New Hampshire Office of Consumer Advocate, by Paul Peterson, David White, Bruce Biewald, and Cliff Chen, June 2003.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants,” a Synapse Energy Economics, Inc. report prepared for the STAR Foundation and Riverkeeper, Inc., by David Schlissel, Paul Peterson, and Bruce Biewald, August 7, 2002.

Predicting Avoided Emissions from Policies that Encourage Energy Efficiency and Clean Power, a Synapse Energy Economics, Inc. report prepared for the Ozone Transport Commission, by Geoff Keith and Bruce Biewald, June 24, 2002.

Survey of Clean Power and Energy Efficiency Programs, a Synapse Energy Economics report prepared for the Ozone Transport Commission, by Lucy Johnston, Geoff Keith, Tim Woolf, Bruce Biewald, and Etienne Gonin, January 14, 2002.

Updated Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts, a Resource Insight report for the AESC Study Group, by Paul Chernick, Susan Geller, Bruce Biewald, and David White, December 5, 2001.

Best Practices in Market Monitoring: A Survey of Current ISO Activities and Recommendations for Effective Market Monitoring and Mitigation in Wholesale Electricity Markets, a Synapse Energy Economics report for the Maryland Office of People’s Counsel, the Pennsylvania Office of Consumer Advocate, the Delaware Division of the Public Advocate, the New Jersey Division of the Ratepayer Advocate, and the Office of the People’s Counsel of the District of Columbia, by Paul Peterson, Bruce Biewald, Lucy Johnston, Etienne Gonin, and Jonathan Wallach, November 9, 2001.

Electricity Market Analysis of Coal Waste Regulations: An Illustrative Midwest Case Study, a Synapse Energy Economics report prepared for US Environmental Protection Agency by Bruce Biewald, David White, and Montserrat Ramiro, October 31, 2001.

The Other Side of Competitive Markets: Developing Effective Load Response in New England’s Electricity Market, a Synapse Energy Economics report prepared for the Maine Department of Attorney General and the Maine Office of the Public Advocate, June 13, 2001.

Valuation of the Bellows Falls Hydroelectric Generating Station as of April 2001, a Synapse Energy Economics report, June 4, 2001.

Room to Breathe: Why the Massachusetts Department of Environmental Protection's Proposed Air Regulations Are Compatible With Electric System Reliability, a Synapse Energy Economics report prepared for MASSPIRG and Clean Water Fund, March 2001

Repowering the Midwest: A Plan for Cleaning Up the Electricity Industry in America’s Heartland, prepared for the Environmental Law and Policy Center and a coalition of Midwest environmental organizations, February, 2001.

Generator Outage Increases: A Preliminary Analysis of Outage Trends in the New England Electricity Market, a Synapse Energy Economics report prepared for the Union of Concerned Scientists, by Daniel Allen, Bruce Biewald, and David Schlissel, January 7, 2001.

Marginal Price Assumptions for Estimating Customer Benefits of Air Conditioner Efficiency Standards: Comments on the Department of Energy's Proposed Rules for Central Air Conditioners and Heat Pump Energy Conservation Standards, a Synapse Energy Economics report prepared for the Appliance Standards Awareness Project, by Tim Woolf, Bruce Biewald, and Daniel Allen, December 4, 2000.

Transmitting Windpower from the Dakotas to Chicago: A Preliminary Analysis of a Hydrogen Transmission Scenario, a Synapse Energy Economics report prepared for the Environmental Law and Policy Center, with funding from the Leighty Foundation, by Barclay Gibbs and Bruce Biewald, September 8, 2000.

Valuation of Hydroelectric Generating Facilities on the Connecticut and Deerfield Rivers in Vermont, a Synapse Energy Economics report for the Vermont Department of Taxes, by Bruce Biewald, Daniel Allen, David White, Neil Talbot, Paul Kirshen, Lawrence Martin, Paul Chernick, and Rachel Brailove, April 1, 2000.

Use of Selective Catalytic Reduction For Control of NOx Emissions From Power Plants in the U.S., a Synapse Energy Economics report for the OntAIRio Campaign, February, 2000.

Electricity Market Distortions Associated With Inconsistent Air Quality Regulations, by Tim Woolf, Bruce Biewald, and David White for the Project for Sustainable FERC Energy Policy, November 18, 1999.

Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts, a Resource Insight report for the AESC Study Group, by Rachel Brailove, Paul Chernick, Susan Geller, Bruce Biewald, and David White, July 7, 1999.

Comments on the Scope of Issues for FERC Staff's Environmental Assessment of the Proposed Rule on RTOs by the Project for Sustainable FERC Energy Policy on behalf of Multiple Parties, prepared by Terry Black and Bruce Biewald, June 14, 1999.

Stranded Nuclear Waste: Implications of Electric Industry Deregulation for Nuclear Plant Retirements and Funding for Decommissioning and Spent Fuel, by Bruce Biewald and David White, January 15, 1999.

New England Tracking System, a report to the New England Governors' Conference, Inc., funded by a grant from the U.S. Environmental Protection Agency, prepared with Environmental Futures, Inc. and Tellus Institute, October 1998.

The Role of Ozone Transport In Reaching Attainment in the Northeast: Opportunities, Equity and Economics, a Synapse Energy Economics report for the Northeast States for Coordinated Air

Use Management, by Tim Woolf, David White, Bruce Biewald, and William Moomaw, July 1998.

Competition and Market Power in Northern Maine Electricity Market, a Synapse Energy Economics report for the Maine Public Utilities Commission, by Tim Woolf, Bruce Biewald, and Duncan Glover, November 24, 1998.

Grandfathering and Environmental Comparability: An Economic Analysis of Air Emission Regulations and Electricity Market Distortions, a Synapse Energy Economics report for the National Association of Regulatory Utility Commissioners, by Bruce Biewald, David White, Tim Woolf, Frank Ackerman, and William Moomaw, June 11, 1998.

Analysis of Market Power in the APS and Duquesne Service Territories, prepared for the Maryland Office of People's Counsel, by Bruce Biewald and David White, February 9, 1998.
Performance-Based Regulation in a Restructured Electric Industry, a Synapse Energy Economics report for the National Association of Regulatory Utility Commissioners, by Bruce Biewald, Tim Woolf, Peter Bradford, Paul Chernick, Susan Geller, and Jerrold Oppenheim, November 8, 1997.

Massachusetts Electric Utility Stranded Costs, a Synapse Energy Economics report for MASSPIRG, Union of Concerned Scientists, Clean Water Action, Massachusetts Citizens for Safe Energy, and Public Citizen, by Bruce Biewald, Tim Woolf, and Marc Breslow, November 4, 1997.

Horizontal Market Power in New England Electricity Markets: Simulation Results and a Review of NEPOOL's Analysis, prepared for the New England Conference of Public Utility Commissioners, by Bruce Biewald, David E. White, and William Steinhurst, June 11, 1997 (a draft was published as Vermont DPS Technical Report No. 39 in March, 1997).

Zero Carbon Electricity: The Essential Role of Efficiency and Renewables in New England's Electricity Mix, a Tellus Institute report for the Boston Edison Company Settlement Board, by Bruce Biewald, Tim Woolf, Bill Dougherty, and Daljit Singh, April 30, 1997.

Full Environmental Disclosure for Electricity: Tracking and Reporting Key Information, a Regulatory Assistance Project report funded by the Pew Charitable Trusts, the Joyce-Mertz Gilmore Foundation, the U.S. EPA, and the U.S. DOE, by David Moskovitz, Tom Austin, Cheryl Harrington, Bruce Biewald, David E. White, and Robert Bigelow, March 1997.

Restructuring the Electric Utilities of Maryland: Protecting and Advancing Consumer Interests, for the Maryland People's Counsel, by Paul Chernick, Jonathan Wallach, Susan Geller, John Plunkett, Roger Colton, Peter Bradford, Bruce Biewald, and David Wise, February 20, 1997.

Sustainable Electricity for New England: Developing Regulatory and Other Governmental Tools to Promote and Support Environmentally-Sustainable Technologies in the Context of Electric Industry Restructuring, a report to the New England Governors' Conference, by Bruce Biewald, Max Duckworth, Gretchen McClain, David Nichols, Richard Rosen, and Steven Ferrey, Tellus No. 95-310, January 1997.

Restructuring New Hampshire's Electric Power Industry: Stranded Costs and Market Power, a report for the New Hampshire Office of Consumer Advocate, by Bruce Biewald, Paul Chernick, Jonathan Wallach, and Peter Bradford, Synapse Report No. 96-05, November 1996.

Comments of the New Hampshire Office of Consumer Advocate on Restructuring New Hampshire's Electric Utility Industry, by Bruce Biewald, Paul Chernick, Jonathan Wallach, and Peter Bradford, Synapse Report No. 96-04, October 18, 1996.

Can We Get There From Here?: The Challenge of Restructuring the Electricity Industry so that We Can All Benefit, a White Paper for CalNeva, Consumer Action, Consumer Federation of California, Consumers First, Greenlining Coalition, Latino Issues Forum, Towards Utility Rate Normalization, and Utility Consumers' Action Network, by John Stutz, Bruce Biewald, Daljit Singh, Tim Woolf, George Edgar, and Wayne DeForrest, April 1996.

A Study of the Impacts of EPA Phase II SO₂ and NO_x Emissions Standards on Electrical Facilities in the ECAR Region, for the Advisory Committee on Competition in Ontario's Electricity System, Ministry of Environment and Energy, by Stephen Bernow, Bruce Biewald, William Dougherty, Maxim Duckworth, and Daljit Singh, Tellus No. 96-069, April 15 1996.

A Projection of Future Market-Based Prices for Air Emissions: Consequences for Renewable and Demand-Side Management Resources, for the Massachusetts Division of Energy Resources, by Maxim Duckworth and Bruce Biewald, Tellus Institute, March 29, 1996.

Promoting Environmental Quality in a Restructured Electric Industry, for the National Association of Regulatory Utility Commissioners, Tellus No. 95-056, December 1995.
Systems Benefits Funding Options, a report to Wisconsin Environmental Decade, Tellus No. 95-248, October 1995.

Costing Energy Resource Options: An Avoided Cost Handbook for Electric Utilities, prepared for the U.S. EPA, Tellus No. 93-251, September 1995.
Electric Resource Planning for Sustainability, a report to the Texas Sustainable Energy Development Council, Tellus No. 94-114, February 1995.

New York State Environmental Externalities Cost Study Report; Report 3a: EXMOD User manual; Report 3b: EXMOD Reference manual; Report 4: Case Studies, prepared for the Empire State Electric Energy Research Corporation and New York State Energy Research and Development Authority. ESEERCO Project EP91-50, December 1994.

"Comments on the DOE's Proposed Rulemaking Regarding Energy Conservation Standards for Three types of Consumer Products: Including Fuel Cycle Environmental Impacts and Resource Depletion in a Societal Cost-Benefit Framework," December 1994.

Comments on the Northwest Power Planning Council's Issue Paper #94-50: "Accounting for Environmental Externalities in the Power Plan," Tellus No. 94-284, December 1994.

Comments on Incentive Regulation in Massachusetts, DPU 94-158, November 1994.

Valuation of Environmental and Human Health Risks Associated with Electric Power Generation: A Discussion of Methods and a Review of Greenhouse Gas Studies, a report prepared for the Izaak Walton League of America, Minnesotans for an Energy Efficient Economy, American Wind Energy Association, Clean Water Action, American Lung Association, Minnesota Center for Environmental Advocacy, and Institute for Local Self Reliance, Tellus No. 94-202, November 1994.

Resource and Compliance Planning: A Utility Case Study of Combined SO₂/CO₂ Reduction, Report Prepared in Cooperative Agreement with the U.S. EPA Acid Rain Division, Tellus No. 92-185, October 1994.

Modeling Renewable Electric Resources: A Case Study of Wind, a report to the U.S. Department of Energy, Tellus No. 91-187, October 1994.

A Review of Methods and Models for Estimating the System Risk Reduction Value of DSM, prepared for the Boston Edison Settlement Board, Tellus No. 93-174B, September 1994.

Life Extension and Repowering for Fossil Plants: Guidelines for Evaluating Projects, prepared for the Energy Foundation, Tellus No. 92-147A, August 1994.

License Renewal for Nuclear Power Plants: Guidelines for Evaluating Continued Operation, prepared for the Energy Foundation, Tellus No. 92-147B, August 1994.

Greenhouse Gas Emissions: Targets and Control Costs, for the British Columbia Energy Coalition, Tellus No. 94-195, August 1994.

Non-Price Benefits of BECo Demand-Side Management Programs, for the Boston Edison Settlement Board, Tellus No. 93-174A, July 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Air Pollutants, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/2, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Air Toxics - Heavy Metals, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/3, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Greenhouse Gases, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/4, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Land and Water Impacts, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/5, June 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Nuclear Fuel Cycle Externalities: Uranium Mining, Reactor Operations, Accidents, and Waste Disposal, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/6, June 1994.

Comments on the State of Wisconsin Draft Environmental Impact Statement - Point Beach Nuclear Power Plant Projects Proposed by Wisconsin Electric Power Company, for the Wisconsin Citizens' Utility Board, Tellus No. 92-058, April 1994.

Incorporating Environmental Externalities in Energy Decisions: A Guide for Energy Planners, a report to the Swedish International Development Agency, Tellus No. 91-157, February 1994.

Development of Externality Values for Energy Resource Planning in Ontario: Introductory Report, prepared for the Ontario Externalities Collaborative, Tellus No. 94-016/1, January 1994.

Cooling Towers for Hudson River Power Plants, Economic and Environmental Considerations, for Scenic Hudson, Inc., Tellus No. 92-022, July 1993.

Energy Efficiency for Massachusetts: A Strategy for Energy, Environment and the Economy, a report to the Massachusetts Division of Energy Resources, Tellus No. 92-236D, April 1993.

Renewable Energy for Massachusetts: A Strategy for Energy, Environment and the Economy, a report to the Massachusetts Division of Energy Resources, Tellus No. 92-236H, April 1993.

The Environmental Impacts of Demand-Side Management Measures, a report for the Electric Power Research Institute, EPRI No. TR-101573, Research Project 3121-05, Tellus No. 92-089, December 1992.

Incorporating Environmental Externalities in Electric System Planning, a report to the Colorado Office of Energy Conservation, Tellus No. 91-203/SB, April 1992.

Evaluation of the Application of Aquidneck Power Limited Partnership to Construct an Energy Facility in Portsmouth, Rhode Island, a report to the Rhode Island Division of Public Utilities and Carriers, The Governor's Office of Housing, Energy and Intergovernmental Relations, and The Department of Administration/Division of Planning, Tellus No. 91-255, April 1992.

Need for and Alternatives to Nuclear Plant License Renewal, a report sponsored by the Vermont Department of Public Service, Tellus No. 91-248, March 1992.

Preliminary Study on Integrated Resource Planning for the Consumers' Gas Company, Ltd., prepared for Consumers Gas Company, Ltd., Tellus No. 91-001, January 1992.

America's Energy Choices: Investing in a Strong Economy and a Clean Environment, in collaboration with the Union of Concerned Scientists, the American Council for an Energy Efficient Economy, the Natural Resources Defense Council, and the Alliance to Save Energy, Tellus No. 90-067, 1991.

Valuation of Environmental Externalities: Sulfur Dioxide and Greenhouse Gases, for the Massachusetts Division of Energy Resources, Tellus No. 91-085, December 1991.

CASM: Coordinated Abatement Strategy Model, Stockholm Environment Institute, Stockholm, Sweden, November 1991.

Valuation of Environmental Externalities for Electric Utility Resource Planning in Wisconsin, a report to Citizens for a Better Environment, Milwaukee, WI, Tellus No. 91-104, November 1991.

The Environmental Costs and Benefits of DSM: A Framework for Analysis, prepared for the Electric Power Research Institute, Tellus No. 90-177, January 1991.

The Potential Impact of Environmental Externalities on New Resource Selection and Electric Rates, for and with the Massachusetts Division of Energy Resources, Tellus No. 90-165, January 1991.

Environmental Impacts of Long Island's Energy Choices: The Environmental Benefits of Demand-Side Management, prepared for Long Island Power Authority, Tellus No. 90-028A, September 1990.

Review of Southern Connecticut Gas Company's Conservation Impact Model, prepared for the Conservation Collaborative Group (Southern Connecticut Gas Company, Connecticut Department of Public Utility Control (DPUC), Prosecutorial Division, DPUC, Office of Policy and Management/Energy Division, and Office of Consumer Counsel), Tellus No. 90-084, July 1990.

Disposal Costs at Existing and Proposed Low-Level Radioactive Waste Disposal Facilities and the Implications for Vermont, prepared for the Vermont Department of Public Service, Tellus No. 89-168, March 1990.

Affidavit on Seabrook Decommissioning, prepared for the Massachusetts Attorney General, ESRG Project No. 89-246, February 1990.

The Economics of the Palisades Nuclear Plant: An Analysis of the Proposed Sale and Power Purchase Agreement, a report to the Michigan Attorney General, ESRG No. 88-100C, April 1989.

An Analysis of Physical Excess and Uneconomic Capacity Resulting from the Addition of Beaver Valley 2 and Perry 1 to the Centerior Generating System, a report for the Ohio Office of Consumers' Counsel, ESRG No. 88-38B, October 1988.

The Economics of Diablo Canyon: Analyses of the Proposed Settlement Agreement and the Continued Operation of the Plant, a report for the Redwood Alliance, ESRG No. 88-050R, September 1988.

The Fort St. Vrain Nuclear Plant: Economics and Related Issues, a report to the Colorado Office of Consumer Council, ESRG No. 86-004, May 1987.

Towards an Energy Transition on Long Island: Issues and Directions for Planning, a report for Nassau and Suffolk Counties, New York, ESRG No. 87-05, April 1987.

The Economics of Completing and Operating the Vogtle Nuclear Generating Facility, prepared for the Georgia Office of Consumers' Utility Counsel, ESRG No. 85-098, April 1986.

Audit-Related Issues in the WHIP Program, a report to Technical Development Corporation, ESRG No. 85-41, January 1986.

Two Issues in Georgia Power Company's Planning: The Economics of the Vogtle Plant - The Company's Load Forecasting, ESRG No. 85-51A, December 1985.

Cost-Benefit Analysis of the Cancellation of Commonwealth Edison's Braidwood Nuclear Generating Station, ESRG No. 83-87, October 1984.

The Economics of Seabrook 1 from the Perspective of the Three Maine Co-owners, a report to the Maine Public Utilities Commission, ESRG No. 84-38, September 1984.
Evaluation of the Massachusetts Energy Conservation Service, ESRG No. 84-07, August 1984.

Electric Rate Consequences of Cancellation of the Midland Nuclear Power Plant, ESRG No. 83-81/1, May 1984.

Power Planning in Kentucky: Assessing Issues and Choices, Technical Report III: Conservation as a Planning Option, ESRG No. 83-51/TRIII, January 1984.

Electric Rate Consequences of Retiring the Robinson 2 Nuclear Power Plant, ESRG No. 83-10, January 1984.

Power Planning in Kentucky: Assessing Issues and Choices, Technical Report I: Long Range Forecasts of Electricity Requirements for Kentucky and its Six Major Utilities, ESRG No. 83-51/TRI, December 1983.

Power Planning in Kentucky: Assessing Issues and Choices, Project Summary to the Public Service Commission, ESRG No. 83-51, November 1983.

Electricity and Gas Savings from Expanded Public Service Electric and Gas Company Conservation Programs, a report to the New Jersey Division of Rate Counsel, ESRG No. 82-43/2, October 1983.

Long Island Without the Shoreham Power Plant: Electricity Cost and System Planning Consequences, ESRG No. 83-14/S, July 1983.

A Technical Report to the Staff of the District of Columbia Public Service Commission on the Benefits to Ratepayers of the Electric Power Research Institute and Gas Research Institute Programs, ESRG No. 83-11, February 1983.

Customer Programs to Moderate Demand Growth on the Arizona Public Service Company System: Identifying Additional Cost-Effective Program Options, ESRG No. 82-14, December 1982.

The Economics of Alternative Space and Water Heating Systems in New Construction in the New Jersey Power and Light Service Area, a report to the Public Advocate, ESRG No. 82-31, December 1982.

Report on Electricity Conservation in the State of Vermont: Assessing the Potential and Developing Program Strategies, a report to the Department of Public Service, ESRG No. 82-23, October 1982.

Long-Range Forecast of Electric Loads in the State of Vermont, ESRG No. 82-16, October 1982.

The Economics of Closing the Indian Point Nuclear Power Plants, ESRG No. 82-40, October 1982.

Priority Residential Customer Programs to Conserve Electricity and Gas in the Public Service Electric and Gas Company Area, a report to the Division of Rate Counsel for New Jersey Board of Public Utilities, ESRG No. 82-43, September 1982.

The Impacts of Early Retirement of Nuclear Power Plant: The Case of Maine Yankee, ESRG No. 82-91, August 1982.

Long Range Forecast of Atlantic City Electric Company Electric Energy and Peak Demand, a report to the New Jersey Board of Public Utilities, ESRG No. 82-17/1, July 1982.

A Power Supply and Financial Analysis of the Seabrook Nuclear Station as a Generation Option for the Maine Public Service Company, a report to the Staff of the Maine Public Utilities Commission, April 1982.

Long Range Forecast of Detroit Edison Company Electric Energy Requirements and Peak Demands, a report to the Michigan Public Service Commission, ESRG No. 81-60/2, April 1982.

Long Range Forecast of Consumer's Power Company Electric Energy Requirements and Peak Demands, a report to the Michigan Public Service Commission, ESRG No. 81-60, March 1982.

A Conservation Case Forecast of Electric Energy Consumption and Peak Demand in the Sierra Power Company Service Area, ESRG No. 81-42/2, February 1982.

Maine Public Service Company's Electric Energy Requirements and Peak Demands, a report to the Maine Public Utilities Commission, ESRG No. 81-61, January 1982.

A Conservation Investment Scenario for the Northeast Utilities Connecticut Service Area, ESRG No. 81-12/1, October 1981.

The Conservation Investment Alternative for New York State, ESRG No. 80-42, September 1981.

A Conservation Investment Program for Alabama Power Company, a report to the Alabama Public Service Commission, ESRG No. 80-62/2, July 1981.

A Conservation Investment Strategy for Utah Power and Light Company: Cost- Benefit Analysis, Public Service Commission of Utah, Case No. 80-035-17, ESRG No. 81-06, February 1981.

The Conservation Alternative to the Power Plant at Shoreham, Long Island, ESRG No. 80-31, November 1980.

PAPERS

“Comments Regarding the Department of Energy's Notice of Intent for the Smart Grid Investment Grant Program,” Rick Hornby, Bob Fagan, and Bruce Biewald, May 6, 2009.

“Co-Benefits Experience and Lessons from the U.S. Electric Sector,” Bruce Biewald, Lucy Johnston, and Jeremy Fisher, published in *Pollution Atmosphérique*, April 1, 2009.

“Synapse 2008 CO2 Price Forecasts,” David Schlissel, Lucy Johnston, Bruce Biewald, David White, Ezra Hausman, Chris James, and Jeremy Fisher, July 30, 2008.

“Nuclear Power Plant Construction Costs,” David Schlissel and Bruce Biewald, July 30, 2008.

“Whitepaper on Least Cost Electricity Procurement in Rhode Island,” Rick Hornby, William Steinhurst, and Bruce Biewald, May 31, 2007.

“Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning,” Lucy Johnston, Ezra Hausman, Anna Sommer, Bruce Biewald, Tim Woolf, David Schlissel, Amy Roschelle, and David White, March 2, 2007.

“Capacity for the Future: Kinky Curves and Other Reliability Options,” Paul Peterson, David White, Amy Roschelle, and Bruce Biewald, December 20, 2004.

“Estimating Emission Reductions from Energy Efficiency in the Northeast,” Bruce Biewald and Geoff Keith, ACEEE 2004 Summer Study, Pacific Grove, CA. August 22-27, 2004.

“Long-Term Power Contracts: The Art of the Deal,” Amy Roschelle, William Steinhurst, Paul Peterson, and Bruce Biewald, *Public Utilities Fortnightly*, August 2004.

“Designing Demand Response Programs in New England to Achieve Air Quality Benefits,” Geoffrey Keith, Bruce Biewald, and David White, *The Electricity Journal*, May 2004.

“The 2003 Blackout: Solutions that Won’t Cost a Fortune,” David White, Amy Roschelle, Paul Peterson, David Schlissel, Bruce Biewald, and William Steinhurst, *The Electricity Journal*, November 2003.

“Electricity Market Distortions Associated with Inconsistent Air Quality Regulations,” Tim Woolf and Bruce Biewald, *The Electricity Journal*, April 2000.

“Grandfathering and coal plant emissions: the cost of cleaning up the Clean Air Act,” Frank Ackerman, Bruce Biewald, David White, Tim Woolf, William Moomaw, *Energy Policy*, Volume 27, Number 15, December 1999.

“Follow the Money: A Method for Tracking Electricity for Environmental Disclosure,” Bruce Biewald, David White, and Tim Woolf, *The Electricity Journal*, May 1999.

Book Review of “U.S. Utility Mergers and the Restructuring of the New Global Power Industry,” in *Energy*, October 1998.

“Implications of Premature Nuclear Plant Closures: Funding Shortfalls for Nuclear Plant Decommissioning and Spent Fuel Transportation and Storage,” Bruce Biewald and David White, prepared for the United States Association for Energy Economics and International Association

for Energy Economics, 19th Annual North American Conference, Albuquerque, NM, October 1998.

"Efficiency, Renewables and Gas: Restructuring as if Climate Mattered," Tim Woolf and Bruce Biewald, *The Electricity Journal*, January/February 1998.

"Green Electricity: Tracking Systems for Environmental Disclosure," B. Biewald and J.A. Ramey, proceedings of WINDPOWER '97, the American Wind Energy Association's annual conference in Austin, Texas, forthcoming.

"Competition and Clean Air: The Operating Economics of Electricity Generation," *The Electricity Journal*, January/February 1997.

"Electric Industry Restructuring and Environmental Sustainability," proceedings of the United States Association for Energy Economics and International Association for Energy Economics, 17th North American Conference on (De)regulation of Energy, Boston, October 1996.

"Residential Real-Time Metering Technology for Electricity Restructuring," Daljit Singh and Bruce Biewald, presented at the National Training and Information Center conference, Chicago, September 1996.

"Competition and Environmental Impacts in the U.S. Electric Sector: Must Market Forces be Tamed?," presented at the International Society of Ecological Economics conference, Boston, August 1996.

"Stranded Risk: Nuclear Power Issues in Electricity Restructuring," for Energy Advocates meeting in Austin, Texas, May 1996.

"Counting the Costs: Scientific Uncertainty and Valuation Perspective in EXMOD," Stephen Bernow, Bruce Biewald, William Dougherty, and David White, presented at technical meeting of the International Atomic Energy Agency, Vienna, Austria, December 4-8, 1995.

"Environmentally Targeted Objectives for Reducing Acidification in Europe," *Energy Policy*, C.A. Gough, P.D. Bailey, B. Biewald, J.C.I. Kuylenstierna and M.J. Chadwick, December 1994.

"Environmental Externalities: Highways and Byways," *NRRI Quarterly Bulletin*, Vol. 15 No. 4, Bruce Biewald, Paul Chernick and Bill Steinhurst, December 1994. Also presented at NARUC's 5th National Conference on Integrated Resource Planning, Kallispell, Montana, May 15-18, 1994.

"From Social Costing to Sustainable Development: Beyond the Economic Paradigm," Stephen Bernow, Bruce Biewald, and Paul Raskin, in *Social Costs of Energy: Present Status and Future Trends*, Proceedings of an International Conference held at Racine, Wisconsin, September 8-11, 1992. Edited by Olav Hohmeyer and Richard Ottinger. Published by Springer-Verlag, September 1994.

"Modeling Renewable Electric Resources: A Case Study of Wind," Stephen Bernow, Bruce Biewald, Daljit Singh, and Jeff Hall, proceedings of the Ninth NARUC Biennial Regulatory Information Conference, Columbus, OH, September 7-9, 1994.

"Alternative Closed Cycle Cooling Systems for Power Plants: A Framework of Evaluation in Integrated Resource Planning," Daljit Singh and Bruce Biewald, in the proceedings of the Ninth NARUC Biennial Regulatory Information Conference, Columbus, OH. September 7-9, 1994.

"Misconceptions, Mistakes and Misnomers in DSM Cost-Effectiveness Analysis, Or What Do You Really Mean By T.R.C.?, Mark Fulmer and Bruce Biewald, ACEEE 1994 Summer Study, Pacific Grove, CA. August 28 - Sept. 2, 1994.

"Modeling Renewable Electric Resources: A Case Study of Wind Power," Stephen Bernow, Bruce Biewald, and Daljit Singh, presented at WINDPOWER 1994, Sponsored by American Wind Energy Association, Minneapolis, Minnesota, May 9-13, 1994.

"National Climate Change Policy and Clean Air Act Compliance: A Case Study of Combined CO₂/SO₂ Reduction," Stephen Bernow, Bruce Biewald, Mark Fulmer, Tim Woolf, Kristen Wulfsberg, and Barry Solomon, in the proceedings of NARUC's 5th National Conference on Integrated Resource Planning, Kallispell, Montana, May 15-18, 1994.

"Modeling Renewable Electric Resources: A Case Study of Wind Reliability," Stephen Bernow, Bruce Biewald, and Daljit Singh, presented at the NARUC-DOE National Regulatory Conference on Renewable Energy, Savannah, Georgia, October 3-6, 1993.

"Environmental Sustainability as a Goal in Resource Planning and Policy," Stephen Bernow and Bruce Biewald, Office of Technology Assessment workshop, Washington, DC. April 1993.

"Climate Change and the U.S. Electric Sector," Bruce Biewald and Stephen Bernow, presented at NARUC's 4th National Conference on Integrated Resource Planning, Burlington, Vermont, September 1992.

"Coordinating Clean Air Act Compliance with Integrated Resource Planning: The Role of Externalities," Stephen Bernow, Bruce Biewald, and Kristin Wulfsberg, the Eighth NARUC Biennial Regulatory Information Conference, Ohio State University, Columbus, Ohio. September 9-11, 1992.

"Direct Environmental Impacts of Demand-Side Management," Stephen Bernow, Frank Ackerman, Bruce Biewald, Mark Fulmer, Karen Shapiro, and Kristin Wulfsberg, American Council for an Energy Efficient Economy (ACEEE) 1992 Summer Study, September 1992.

"Modeling Fuel Cycle and Site-Dependent Environmental Impacts in Electric Resource Planning," Stephen Bernow and Bruce Biewald, invited paper at OECD-IEA Expert Workshop on Life-Cycle Analysis of Energy Systems, Paris, France, May 18 and 19, 1992. Proceedings published OECD/IEA Paris, 1993.

"Computer Model Use in Energy Conservation Planning," presented at the Latin American Energy Organization (OLADE) Seminar on Power Systems Computer Modeling in Quito, Ecuador, September 23-25, 1991.

"Environmental Externalities Measurement: Quantification, Valuation and Monetization," Bernow, Biewald and Marron, in External Environmental Costs of Electric Power, proceedings of a German-American workshop, Ladenburg, FRG, October 23-25, 1991. Edited by Olav Hohmeyer and Richard Ottinger, published by Springer-Verlag (Berlin, Heidelberg, New York).

"Some Microcomputer Tools for Least Cost Integrated Energy Planning: ECO, LEAP and EDB," Bruce Biewald and Harvey Salgo, presented at workshop on Energy Pricing and Planning, Bratislava, Czechoslovakia, May 21-22, 1991.

"Confronting Uncertainty: Contingency Planning for Decommissioning," Bruce Biewald and Stephen Bernow, Chapter 18 of "Nuclear Decommissioning Economics," a special issue of The Energy Journal of the International Association for Energy Economics, Vol.12, March 1991.

"Avoided Emissions and Environmental Dispatch," Stephen Bernow and Bruce Biewald, presented at the Conference on "Demand-Side Management and the Global Environment," Arlington, Virginia, April 22-23, 1991.

"Environmental Benefits of DSM in New York: Long Island Case Study," Bruce Biewald and Stephen Bernow, presented at the Conference on "Demand-Side Management and the Global Environment," Arlington, Virginia, April 22-23, 1991.

"Full Cost Dispatch: Incorporating Environmental Externalities in Electric System Operation," Stephen Bernow, Bruce Biewald and Donald Marron, the Electricity Journal, March 1991.

"EDB: A Flexible Database System for Energy-Environmental Analysis," Bruce Biewald, Michael Lazarus, and David Von Hippel, presented at International Atomic Energy Agency

(IAEA) Technical Committee Meeting on "Development of a Database for Comparative Health and Environmental Impacts of Various Energy Systems," in Vienna, Austria, October 15-19, 1990.

"Full Cost Economic Dispatch: Recognizing Environmental Externalities in Electric Utility System Operation," Stephen Bernow, Bruce Biewald, and Donald Marron, presented at NARUC Conference on Externalities, Jackson Hole, Wyoming, October 1990.

"An Assessment of Demand-Side Management Models and Their Use and Applicability in Canadian Utilities," Martin Adelaar and Bruce Biewald, in the proceedings of the Canadian Electrical Association Demand-Side Management Conference, Halifax, Nova Scotia, September 1990.

"Avoided Cost Contracts Can Undermine Least Cost Planning," Stephen Bernow, Bruce Biewald, and Donald Marron, Energy Policy, September 1990.

"Environmental Externalities Measurement: Quantification, Valuation, and Monetization," Stephen Bernow, Bruce Biewald, and Donald Marron, in the proceedings of the Seventh NARUC Biennial Regulatory Information Conference, September 1990.

"Do We Really Need Nuclear Generating Companies?," Public Utilities Fortnightly, June 7, 1990.

"Nuclear Power Economics: Construction, Operation and Disposal," Bruce Biewald and Donald Marron, March 1989.

"Electric Utility System Reliability Analysis: Determining the Need for Generating Capacity," Stephen Bernow and Bruce Biewald, in the proceedings of the Sixth NARUC Biennial Regulatory Information Conference, September 1988.

"Nuclear Power Plant Decommissioning: Cost Estimation for Power Planning and Ratemaking," Stephen Bernow and Bruce Biewald, Public Utilities Fortnightly, October 29, 1987.

"Cost and Performance of Boiling Water Reactors," Stephen Bernow, Bruce Biewald and Tim Woolf, Public Utilities Fortnightly, August 1987.

PRESENTATIONS

(Note: Presentations that were accompanied by a written paper are listed in the section for "papers," above.)

"The U.S. Power System: Economic and Regulatory Challenges to Reducing Greenhouse Gas Emissions from the World's Largest Machine," presentation at Design Continuum, December 3, 2008.

"Economics of Electric Sector CO2 Emissions Reduction: Making Climate Change Policy that People Can Live With," presentation at the NASUCA 2008 Annual Meeting, November 18, 2008.

"Selected Topics from Avoided Energy Supply Costs in New England 2007 Final Report," presentation at a MA DPU Technical Session, July 29, 2008.

"Prudent Planning and New Coal-Fired Generation," presentation at the CERES 2008 Conference, April 29, 2008.

"Climate Change Policies in the Northeast - Carbon Emission Caps and Energy Cost," presentation at the ASHRAE Winter Meeting, prepared for the American Society of Heating, Refrigerating and A/C Engineers, January 19, 2008.

“Efficiency and Renewable Energy for Carbon Constrained Electric Systems 2007,” presentation at the NASUCA Annual Meeting, Anaheim, California, prepared for National Association of State Utility Consumer Advocates, November 12, 2007.

“Air Emissions Issues Associated DER in the Mid-Atlantic Region,” presentation at the Mid-Atlantic State Energy and Environment Workshop on Distributed Energy Resources, September 27, 2007.

“Exploration of Costs for Load Side and Supply Side Carbon Caps for California,” presentation at the Joint En Banc Hearing of PUC and CEC on Point of Regulation in the Electricity Sector (R.06-04-009), prepared for Regulatory Assistance Project, and California Public Utilities Commission, August 21, 2007.

“Portfolio Management: Tools and Practices for Regulators,” presentation at the NARUC 2006 Summer Meeting in San Francisco, California, and for the Annual Convention in Miami, Florida, prepared for the National Association of Regulatory Utility Commissioners, July 2006 and November 2006.

“Electricity Price Increases: Causes, Effects, and Solutions,” presentation at the Restructuring Roundtable, May 19, 2006.

“Forecasting and Using Carbon Prices in a World of Uncertainty,” presentation to Electric Utilities Environmental Conference in Tucson, Arizona on January 22, 2006.

“Energy Efficiency in the Northeast,” presentation at ACEEE National Conference on Energy Efficiency as a Resource, Berkeley, CA, September 27, 2005.

“The Shape of Things to Come: Incorporating Unproven Reserves of Efficiency Savings into Energy Models,” presentation to the East Coast Energy Group, Washington, DC, November 10, 2004.

“Displaced Emissions from Renewables and Efficiency in the Northeast United States,” presentation at a workshop convened by the Commission for Environmental Cooperation, the US Environmental Protection Agency, and the World Resources Institute, Washington DC, November 4, 2004.

“Electric Transmission Technical and Policy Issues,” presentation at National Association of State Utility Consumer Advocates conference in Austin, Texas, June 14, 2004.

“Incorporating Renewable Generation into a Risk Management Strategy,” presentation at the New England Conference of Public Utility Commissioners Symposium, Brewster, Massachusetts, May 25, 2004.

“Electricity Portfolio Management,” presentation at Illinois State University Institute for Regulatory Policy Studies Conference on “Beyond 2006,” Springfield, Illinois, May 20, 2004.

“Electricity Risk Management: Diversified Resource Portfolios,” presentation at Electric Power Supply Association Meeting, Washington, D.C., May 6, 2004.

“Quantifying Emission Reductions from Local Government Actions,” presentation to Metropolitan Washington Council of Governments Energy and Air Quality Conference, Washington DC, April 5, 2004.

“Electricity Portfolio Management,” presentation to National Association of Regulatory Utility Commissioners’ conference in Washington, D.C., March 9, 2004.

“Portfolio Management for Electricity,” presentation at the Regulatory Assistance Project’s workshop on portfolio management, Chicago, September 18, 2003.

“Issues in Estimating Electric System Displaced Emissions,” presentation at the Commission for Environmental Cooperation Technical Meeting on Approaches to Estimating Environmental Benefits of Renewable Energy and Energy Efficiency, Washington, DC, July 27, 2003.

“Best Practices in Market Monitoring and Mitigation,” presented at the National Association of State Utility Consumer Advocates Mid-Year Meeting in Austin, Texas, June 16, 2002.

“Regulation of Waste Management at Large Electric Utilities: Modeling Industry Impacts,” US Environmental Protection Agency, August 7, 2001.

“Quality of Service in Performance-Based Regulation: US Experiences,” presented at the Seminar on Regulation of Electricity Supply Quality, Milan, Italy, June 8, 2001.

“Demand Response in Electricity Markets,” presented at the National Association of State Utility Consumer Advocates Mid-Year Meeting in Santa Fe, New Mexico, June 18, 2001.

Presentation on “Repowering the Midwest: The Clean Energy Development Plan for the Heartland,” at the National Wind Coordinating Committee Upper Midwest Transmission Workshop, Minneapolis, Minnesota, May 1, 2001.

“Observations on New England’s Electricity Markets,” National Regulatory Research Institute Market Power Conference, Columbus, Ohio, April 10, 2001.

Presentation on “Derailing Coal: The Economics of Coal-Fired Electricity Generation in the U.S.,” Tax Shift Strategy Meeting, Washington, D.C., December 2, 2000.

Presentation on “Repowering the Midwest: A Clean Energy Development Plan for the Heartland,” presentation with Howard Learner at the National Association of Regulatory Utility Commissioners Annual Meeting, San Diego, California, November 14, 2000.

Presentation on “Electricity in New England: Market Imperfections of Failure?” at National Association of State Utility Consumer Advocates Annual Meeting, San Diego, California, November 13, 2000.

Presentation on “How Green is Green? Verifying Energy Advertising Claims,” at the New England Conference of Public Utility Commissioners Symposium, Bretton Woods, New Hampshire, May 25, 1999.

Presentation on “Consumer Perspectives on Market Power – Case Studies from New England, New York, PJM, and Mississippi,” IBC Conference on Market Power, Washington DC, May 24, 1999.

Presentation on “Grandfathering and Environmental Comparability,” at the National Association of Regulatory Utility Commissioners 1998 Summer Committee Meetings, Seattle, July 26, 1998.

Presentation on “Tracking Electricity in the New England Market,” at the National Association of Regulatory Utility Commissioners 1998 Summer Committee Meetings, Seattle, July 26, 1998.

Presentation on “Tracking Electricity in the New England Electricity Market,” at the National Council on Competition and the Electricity Industry National Executive Dialogue on Customers’ Right to Know, Chicago, May 13, 1998.

Presentation on “Comparable Environmental Regulations in a Restructured Electricity Industry: The Grandfathering Effect,” National Association of Regulatory Utility Commissioners meeting in Washington, D.C., March 1, 1998.

Presentation on “Market Power in Electricity Generation,” National Consumer Law Center Conference, Washington, D.C., February 9, 1998.

Presentation on “Electricity Market Power in New England,” Massachusetts Electric Industry Restructuring Roundtable, Boston, December 15, 1997.

Presentation on wind power development and air quality, National Wind Coordinating Committee New England Wind Issues Forum, Boston, November 7, 1997.

Invited speaker on market power, National Association of State Utility Consumer Advocates meeting in Boston, November 12, 1997.

Presentation on "Distortions to Future and Current Competitive Electric Energy Markets Due to Grandfathering Environmental Regulations of Electric Power Plants," National Association of Regulatory Utility Commissioners meeting in Boston, November 9, 1997.

Presentation on "Electric Industry Restructuring as if the Environment Mattered," Boston Area Solar Energy Association, October 9, 1997.

Invited speaker on "Modeling Market Power in Electricity Generation," National Association of Regulatory Utility Commissioners meeting in San Francisco, July 22, 1997.

Presentation on "Performance-Based Regulation in a Restructured Electric Industry," National Association of Regulatory Utility Commissioners meeting in San Francisco, July 20, 1997.

Presentation on "State Initiatives and Regional Issues," New England Governors' Conference Workshop on Restructuring and Environmentally Sustainable Technologies, Warwick, Rhode Island, March 25, 1997.

Invited speaker on stranded costs, National Association of State Utility Consumer Advocates meeting in San Francisco, November 1996.

Presentation on "Nuclear Power Plant Decommissioning Costs and Electricity Restructuring," Nuclear Decommissioning Trusts conference, New York City, November 18, 1996.

Invited speaker on stranded costs, Indiana Utilities Regulatory Commission Forum, Indianapolis, November 1, 1996.

Presentation on "Electric Industry Restructuring and the Environment," at the Indiana Energy Conference, Indianapolis, Indiana, October 10, 1996.

Presentation on "Small Customers in a Restructured Electricity Industry: Transaction Costs, Advanced Metering Technologies and Aggregation Options" to the Consumers' Energy Conference, South Portland, Maine, July 1996.

Presentation on "Electric Generation Market Power in New England" to New England Conference of Public Utility Commissioners, Manchester Village, Vermont, May 1996.

Presentation on "Advanced Metering for Residential Customers on Electricity Restructuring" to National Consumer Law Center's 10th Annual Conference in Washington, DC, February 1996.

Presentations on "Market Power," "Environmental Aspects of Restructuring" and "Market Access for Small Customers" to Vermont Public Service Board workshops on electricity restructuring, January and February 1996.

Presentation on "Environmental Impacts of Energy: Sustainability and Social Costing" to British Columbia Utilities Commission Workshop, Vancouver, BC, March 1995.

Presentation on "Competition and Economic Efficiency" to the National Council on Competition and the Electric Industry, December 1995.

Presentation on "Compliance Planning Under Regulatory Uncertainty," to EPA "Opportunities Conference: Energy Efficiency and Renewable Energy," Washington, DC, June 1993.

Presentation on "Energy and Sustainability" to Hydro-Quebec Conference, Hampshire College, Amherst, Massachusetts, April 1993.

Invited Speaker on environmental externalities, ASME "ECO World" conference in Washington, DC, June 1992.

Invited Speaker, Association of Energy Engineers, Boston, Massachusetts, February 1992.

Presentation of Acid Rain Abatement Optimization Model to the Swedish Environmental Protection Agency, Solna, Sweden, November 1991.

Presentation on Integrated Resource Planning to Boston Gas Company, July 1990.

Training on Methods for Calculating Electric System Avoided Costs, provided to energy planners and policy makers from five Southeast Asian countries sponsored by U.S. Agency for

International Development and administered by the Institute of International Education, May 1990.

Invited Speaker, National Association of State Utility Consumer Advocates (NASUCA) Mid-Year Meeting, Annapolis, Maryland, and June 1988.

Invited Speaker, Conference on New Developments in Nuclear Decommissioning Costs and Funding Methods, sponsored by the Northeast Center for Professional Education, Washington, DC, April 1988.

Resume dated June 2010.

APPENDIX B

CONSIDERED DOCUMENTS

- (1) Letter to Mr. William Presson (Michigan Department of Environmental Quality) from Kelly L. Guertin (DTE Energy Company), March 12, 2010.
- (2) Letter to Mr. Mark Palermo (US EPA Region 5) from Michael J. Solo, Jr. (DTE Energy Company), June 3, 2010.
- (3) Qualification and Direct Testimony of Sherrie L. Siefman (The Detroit Edison Company), MPSC Case No. U-16047, September 2009.
- (4) Declaration of Ranajit (Ron) Sahu, in this matter.